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What is claimed is:

- 1 1. An access restriction information setting method which
2 sets up access restriction information on a storage device,
3 in a storage area network system having the storage device
4 which determines right or wrong of an access request to a
5 volume in accordance with access restriction information
6 which is set up on a port which receives the request, and
7 a host computer which transmits an access request to said
8 storage device through a first network, , comprising:
9 a first step for obtaining access restriction
10 information and information of a volume which are set up
11 on each port that a first storage device has, through a second
12 network;
13 a second step for obtaining attribute information
14 including a port type and a status of utilization of each
15 port that a second storage device has, from said second storage
16 device through said second network;
17 a third step for selecting a port of said second storage
18 device which is utilized for an access to a volume that said
19 first storage device has or had, on the basis of attribute
20 information of each port that said second storage device
21 has, which is obtained in said second step; and
22 a fourth step for setting up, on a port of said second
23 storage device which is selected in said third step, access
24 restriction information of a port of said first storage device

25 to which a volume, of which the port is utilized for an access,
26 is assigned, on the basis of access restriction information
27 and information of a volume of each port that said first
28 storage device has, which are obtained in said first step.

1 2. An access restriction information setting method
2 according to Claim 1, wherein

3 said third step selects a target port which is utilized
4 for reception of an access request to a volume that said
5 first storage device has from said host computer, and an
6 initiator port which is utilized for transmission of an access
7 request to a volume that said first storage device has from
8 said second storage device, and

9 said fourth step sets up, on a target port of said second
10 storage device which is selected in said third step, access
11 restriction information of a port of said first storage device
12 to which a volume, of which the port is utilized for an access,
13 is assigned, and permits only an access request to access
14 restriction information of said first storage device to which
15 the volume is assigned from an initiator port of said second
16 storage device which is selected in said third step.

1 3. An access restriction information setting method
2 according to Claim 1, wherein

3 said first step obtains access restriction information
4 which is set up on each port that a first storage device

5 has and information of a volume, from said first storage
6 device through said second network.

1 4. An access restriction information setting method
2 according to Claim 1, wherein

3 said first step specifies access restriction
4 information which is set up on each port that a first storage
5 device has and information of a volume, by obtaining
6 information of a port of said host computer which is utilized
7 for an access to a volume that said first storage device
8 has and information of a port of said first storage device,
9 from said host computer through said second network.

1 5. An access restriction information setting method
2 according to Claim 1, further comprising:

3 a fifth step for changing a port of said first storage
4 device which is associated with each mount point of a file
5 system of said host computer and a volume which is assigned
6 to the port, to a port of said second storage device which
7 is utilized for an access to the volume and a volume which
8 is defined on the port.

1 6. An access restriction information setting method
2 according to Claim 1, wherein

3 said first storage device sets up access restriction
4 information on each port, by use of a first management table

5 in which an information identifier of a volume and a source
6 port of an access to be permitted are listed with a LUN unit
7 with respect to each port, and
8 said second storage device sets up access restriction
9 information on each port, by use of a second management table
10 in which a LUN and an identifier of a volume are listed with
11 a group unit of source ports of an access to be permitted
12 with respect to each port, and
13 said first step obtains said first management table,
14 and
15 said fourth step prepares said second management table
16 as to each port of said second storage device which is selected
17 in said third step, on the basis of a listed content of said
18 first management table which is obtained in said first step
19 as to each port of said first storage device to which a volume,
20 of which said port is utilized for an access, is assigned,
21 and updates said second management table that said second
22 storage device has.

1 7. An access restriction information setting method
2 according to Claim 1, wherein
3 in case that said host computer has a plurality of paths
4 which are used for an access to the same volume, a process
5 of said fourth step to the volume is carried out at least
6 twice separately to said plurality of paths.

1 8. An access restriction information setting method
2 according to Claim 1, wherein
3 said second network is different from said first
4 network.

1 9. An access restriction information setting apparatus
2 which sets up access restriction information on a storage
3 device, in a storage area network system having the storage
4 device which determines right or wrong of an access request
5 to a volume in accordance with access restriction information
6 which is set up on a port which receives the request, and
7 in a host computer which transmits an access request to said
8 storage device through a first network, comprising:
9 obtaining unit which obtains access restriction
10 information and information of a volume which are set up
11 on each port that a first storage device has, and attribute
12 information including a port type and a status of utilization
13 of each port that a second storage device has, through a
14 second network;
15 selecting unit which selects a port of said second
16 storage device which is utilized for an access to a volume
17 that said first storage device has or had, on the basis of
18 attribute information of each port that said second storage
19 device has, which is obtained in said obtaining unit; and
20 setting unit which sets up, on a port of said second
21 storage device which is selected in said selecting unit,

22 access restriction information of a port of said first storage
23 device to which a volume, of which the port is utilized for
24 an access, is assigned, on the basis of access restriction
25 information and information of a volume of each port that
26 said first storage device has, which are obtained in said
27 obtaining unit.

1 10. An access restriction information setting system
2 having first and second storage devices which determine right
3 or wrong of an access request to a volume in accordance with
4 access restriction information which is set up on a port
5 which receives the request, a host computer which transmits
6 an access request to said first and second storage devices
7 through a first network, and an access restriction
8 information setting device which is connected to said first
9 and second storage devices through a second network, wherein
10 said access restriction information setting device

11 comprising:

12 obtaining unit which obtains access restriction
13 information and information of a volume which are set up
14 on each port that said first storage device has, and attribute
15 information including a port type and a status of utilization
16 of each port that said second storage device has, through
17 a second network;

18 selecting unit which selects a port of said second
19 storage device which is utilized for an access to a volume

20 that said first storage device has or had, on the basis of
21 attribute information of each port that said second storage
22 device has, which is obtained in said obtaining unit; and
23 setting unit which sets up, on a port of said second
24 storage device which is selected in said selection unit,
25 access restriction information of a port of said first storage
26 device to which a volume, of which the port is utilized for
27 an access, is assigned, on the basis of access restriction
28 information and information of a volume of each port that
29 said first storage device has, which are obtained in said
30 obtaining unit.

1 11. A computer-readable program for setting access
2 restriction information on a storage device, in a storage
3 area network system having the storage device which
4 determines right or wrong of an access request to a volume
5 in accordance with access restriction information which is
6 set up on a port which receives the request, and a host computer
7 which transmits an access request to said storage device
8 through a first network, wherein said program makes a computer
9 execute:

10 a first step for obtaining access restriction
11 information and information of a volume which are set up
12 on each port that a first storage device has, through a second
13 network;

14 a second step for obtaining attribute information

15 including a port type and a status of utilization of each
16 port that a second storage device has, from said second storage
17 device through said second network;

18 a third step for selecting a port of said second storage
19 device which is utilized for an access to a volume that said
20 first storage device has or had, on the basis of attribute
21 information of each port that said second storage device
22 has, which is obtained in said second step; and

23 a fourth step for setting up, on a port of said second
24 storage device which is selected in said third step, access
25 restriction information of a port of said first storage device
26 to which a volume, of which the port is utilized for an access,
27 is assigned, on the basis of access restriction information
28 and information of a volume of each port that said first
29 storage device has, which are obtained in said first step.

1 12. An access restriction information setting method in
2 which, in a storage area network system having the storage
3 device which determines right or wrong of an access request
4 to a volume in accordance with access restriction information
5 which is set up on a port which receives the request, and
6 a host computer which transmits an access request to said
7 storage device through a first network, an access restriction
8 information setting device which is connected to said storage
9 device through a second network sets up access restriction
10 information on said storage device, wherein

11 said access restriction information setting device
12 obtains access restriction information and
13 information of a volume which are set up on each port that
14 a first storage device has, through said second network,
15 obtains attribute information including a port type
16 and a status of utilization of each port that said second
17 storage device has, from said second storage device through
18 said second network,
19 selects a port of said second storage device which is
20 utilized for an access to a volume that said first storage
21 device has or had, on the basis of attribute information
22 of each port that said second storage device has, which is
23 obtained as above, and
24 sets up, on a port of said second storage device which
25 is selected as above, access restriction information of a
26 port of said first storage device to which a volume, of which
27 the port is utilized for an access, is assigned, on the basis
28 of access restriction information and information of a volume
29 of each port that said first storage device has, which are
30 obtained as above.

1 13. An access restriction information setting apparatus
2 which sets up access restriction information on a storage
3 device, in a storage area network system having the storage
4 device which determines right or wrong of an access request
5 to a volume in accordance with access restriction information

6 which is set up on a port which receives the request, and
7 a host computer which transmits an access request to said
8 storage device through a first network, comprising:
9 a network I/F unit which is utilized for connecting
10 to said second network, and a calculation unit,
11 wherein, said calculation unit
12 obtains access restriction information and
13 information of a volume which are set up on each port that
14 a first storage device has, from said first storage device
15 and attribute information including a port type and a status
16 of utilization of each port that the second storage device
17 has, from said second storage device, through said network
18 I/F unit,
19 selects a port of said second storage device which is
20 utilized for an access to a volume that said first storage
21 device has or had, on the basis of attribute information
22 of each port that said second storage device has, which is
23 obtained as above, and
24 sets up, on a port of said second storage device which
25 is selected as above, through said network I/F unit, access
26 restriction information of a port of said first storage device
27 to which a volume, of which the port is utilized for an access,
28 is assigned, on the basis of access restriction information
29 and information of a volume of each port that said first
30 storage device has, which are obtained as above.

1 14. An access restriction information setting system
2 having first and second storage devices which determine right
3 or wrong of an access request to a volume in accordance with
4 access restriction information which is set up on a port
5 which receives the request, a host computer which transmits
6 an access request to said first and second storage devices
7 through a first network, and an access restriction
8 information setting device which is connected to said first
9 and second storage devices through a second network, wherein
10 said access restriction information setting apparatus
11 has a network I/F unit which is utilized for connecting
12 to said second network, and a calculation unit, and
13 said calculation unit
14 obtains access restriction information and
15 information of a volume which are set up on each port that
16 a first storage device has, and attribute information
17 including a port type and a status of utilization of each
18 port that a second storage device has, from said second storage
19 device, through said network I/F unit,
20 selects a port of said second storage device which is
21 utilized for an access to a volume that said first storage
22 device has or had, on the basis of attribute information
23 of each port that said second storage device has, which is
24 obtained as above, and
25 sets up, on a port of said second storage device which
26 is selected as above, through said network I/F unit, access

27 restriction information of a port of said first storage device
28 to which a volume, of which the port is utilized for an access,
29 is assigned, on the basis of access restriction information
30 and information of a volume of each port that said first
31 storage device has, which are obtained as above.

1 15. An access restriction information setting system
2 having first and second storage devices which determine right
3 or wrong of an access request to a volume in accordance with
4 access restriction information which is set up on a port
5 which receives the request, a host computer which transmits
6 an access request to said first and second storage devices,
7 a Fibre Channel switch which configures a Fibre Channel
8 network which connects between said first and second storage
9 devices and said host computer, a management server which
10 sets up access restriction information on said first and
11 second storage devices, and a LAN which connects between
12 said first and second storage devices and said management
13 server, wherein

14 said first and second storage devices have a FC I/F
15 which connects to said Fibre Channel switch, and
16 said management server
17 has a LAN I/F unit which is utilized for connecting
18 to said LAN, and a calculation unit, and
19 said calculation unit
20 obtains access restriction information and

21 information of a volume which are set up on each port of
22 the FC I/F that a first storage device has from said first
23 storage device, and attribute information including a port
24 type and a status of utilization of each port of the FC I/F
25 that the second storage device has, from said second storage
26 device, through said LAN I/F unit,

27 selects a port of a FC I/F on said second storage device
28 which is utilized for an access to a volume that said first
29 storage device has or had, on the basis of attribute
30 information of each port of the FC I/F that said second storage
31 device has, which is obtained as above, and

32 sets up, on a port of the FC I/F of said second storage
33 device which is selected as above through said LAN I/F unit,
34 access restriction information of a port of the FC I/F of
35 said first storage device to which a volume, of which the
36 port is utilized for an access, is assigned, on the basis
37 of access restriction information and information of a volume
38 of each port of the FC I/F that said first storage device
39 has, which are obtained as above.

1 16. An access restriction information setting apparatus
2 according to claim 13, wherein

3 said calculation unit

4 obtains the access restriction information and the
5 information of the volume which are set up on each port that
6 said first storage device has, from said first storage device,

7 through said second network,
8 selects, as the port of the second storage, a target
9 port which is utilized for receiving an access request from
10 said host computer to a volume that said first storage device
11 has, and an initiator port which is utilized for sending
12 an access request from said second storage device to a volume
13 that said first storage device has, and
14 sets up access restriction information of a port of
15 said first storage device to which a volume, of which the
16 port is utilized for an access, is assigned, on the selected
17 target port of the second storage device, and in addition,
18 updates access restriction information of a port of said
19 first storage device to which the volume is assigned so as
20 to permit an access request only from the selected initiator
21 port of said second storage device.

1 17. An access restriction information setting apparatus
2 according to claim 13, wherein

3 said calculation unit specifies access restriction
4 information which is set up on each port that said first
5 storage device has and information of a volume, by obtaining
6 a port of said host computer which is utilized for an access
7 to a volume that said first storage device has and information
8 of a port of said first storage device, from said host computer
9 through said second network.

1 18. An access restriction information setting apparatus
2 according to claim 13, wherein
3 said calculation unit
4 changes a port of said first storage device which is
5 associated with each mount point of a file system of said
6 host computer and a volume which is assigned to the port,
7 to a port of said second storage device which is utilized
8 for an access to the volume and a volume which is defined
9 on the port.

1 19. An access restriction information setting apparatus
2 according to claim 13, wherein
3 said first storage device sets up access restriction
4 information on each port, by use of a first management table
5 on which an information identifier of a volume and a source
6 port of an access to be permitted are listed with a LUN unit
7 with respect to each port, and
8 said second storage device sets up access restriction
9 information on each port, by use of a second management table
10 on which a LUN and an identifier of a volume are listed with
11 a group unit of source ports of an access to be permitted
12 with respect to each port, and
13 said calculation unit
14 obtains said first management table, and prepares said
15 second management table as to each port of said second storage
16 device which is selected as above, on the basis of a listed

17 content of said first management table, and updates said
18 second management table which said second storage device
19 has..

1 20. An access restriction information setting apparatus
2 according to claim 13, wherein
3 in a case that said host computer has a plurality of
4 paths which are used for an access to the same volume, a
5 process of setting up said access restriction information
6 to a volume is carried out at least twice separately to said
7 plurality of paths.